Early impressions of the vegetation of the Sydney region: exploration and plant use by the First Fleet Officers

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Abstract

There was no official naturalist assigned to the First Fleet; this is surprising given the tradition of having scientists along on voyages of exploration and given also the support of Sir Joseph Banks for the establishment of a colony in New South Wales. Perhaps the work done on Cook's voyages was considered an adequate base for the establishment of a settlement or possibly the Surgeons were expected to fill this role as well as their medical one? The first written impressions of the vegetation of the Sydney region come, in fact, from Governor Phillip himself and from a number of the senior Naval and Military Officers. In this paper some of their descriptions of the country, of the local vegetation and of individual plants are examined and their use of available food plants and timber trees noted. An attempt is made to assess the value of their writings for the ecological and botanical history of the region.

The first written observations of the Sydney-Port Jackson region come from the Commander (Governor Arthur Phillip) and officers of the First Fleet — men such as John Hunter, Captain of the *Sirius* and William Bradley, his First Lieutenant; the Surgeons John White, George Worgan and Arthur Bowes Smyth; the Captain of the Marines, Watkin Tench, and the Judge-Advocate, David Collins. They were all well-educated men and keen observers; their writings and illustrations provide us with a wealth of information, albeit of a general nature, on the type of country they found, the soils and vegetation, the availability of food and medicinal plants and the use the aborigines made of various plants.

Hunter and Bradley were expert surveyors and cartographers — they provided detailed comment on the waterways and adjoining countryside and on the habits of the Aborigines they observed. Hunter's published journal (1793) has engravings from his own drawings, including several of natural history subjects; and a bound volume of watercolour sketches held by the National Library of Australia includes paintings of plants, birds, fish, other marine organisms and of Aborigines (Whitehead 1988). Bradley's manuscript journal (1786–1792), published as a facsimile in 1969, includes a number of watercolour plates and charts.

John White was a keen naturalist and collected many of the 'non-descript productions' of the strange land, sending them back to Thomas Wilson in England. A number of these were used as the basis for descriptions and illustrations by J. E. Smith (1793–1795). Arthur Bowes Smyth also collected plants and animals and did some sketches, while Watkin Tench collected soil samples and precise meteorological data (according to Fitzhardinge 1979, editor of Tench's *Narrative* and *Complete Account*). George Worgan, one of the more eccentric of the group (known to have taken a piano to Botany Bay aboard the *Sirius*), provides interesting comment on daily activities as well as on landscape, vegetation and the Aborigines in his journal (Worgan 1788). Other natural history artists associated with the First Fleet and the settlement at Port Jackson are discussed by Whitehead (1988).

Botany Bay to Sydney Cove

The First Fleet officers were no doubt very thankful to have arrived in Botany Bay after an eight-month voyage with 'a fleet of eleven sail, nine of which were merchantmen that had never before sailed in that distant and imperfectly explored ocean' (Collins 1798, 1802 p. 1). But now they had to find suitable land for the settlement and to establish a viable colony. They had as background the journals of Cook and Banks, both of whom had recommended Botany Bay. Phillip, however, on examining it soon after arrival, realized it was unsuitable for the settlement of over 1,000 people on account of the land being very swampy and the Bay shallow and exposed to the easterly winds, so he set off to examine Port Jackson and Broken Bay — both named but not entered by Cook.

Hunter, who accompanied Phillip, said of the entrance to Port Jackson that 'the outer heads or capes that form its entrance . . . are high, rugged and perpendicular cliffs' (Fig. 1). They entered the harbour and 'proceeded up for two days, examining every cove . . . the country was also particularly noticed and found greatly superior in every respect to that around Botany-bay' (Hunter 1793, p. 29). Phillip (in Historical Records of New South Wales 1892, p. 122) reported his choice of cove as

> the one that had the best spring of water, and in which the ships can anchor so close to the shore that at a very small expence quays may be made at which the largest ships may unload . . . (Fig. 2).

The explorers returned to Botany Bay and prepared to move all the ships round to Port Jackson.

Bowes Smyth, Surgeon on the *Lady Penrhyn* which remained in Botany Bay, noted for 22 January 1788 that 'I went on shore and stayed all day collecting nat-

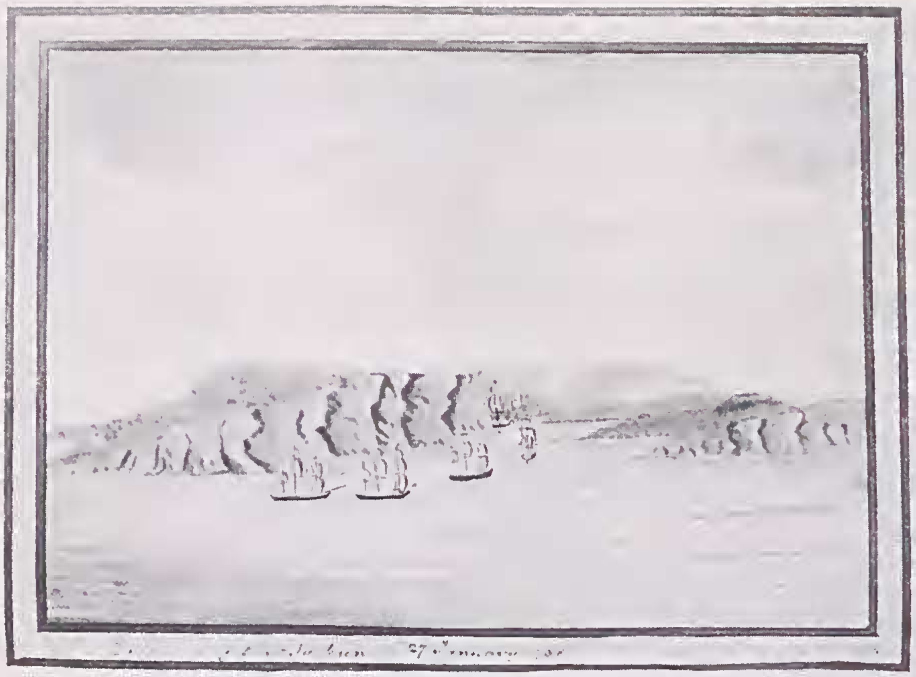

Fig. 1. Entrance of Port Jackson, 27 January 1788 — William Bradley watercolour.

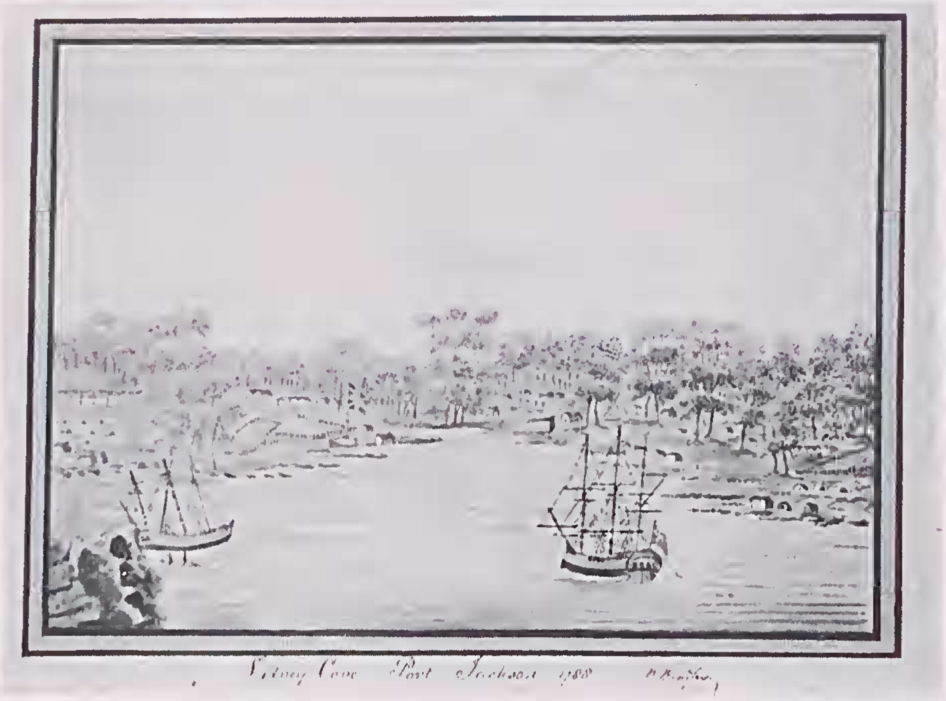
Sidney Cove Port Jackson 1788 W Bradley

Fig. 2. Sydney Cove, Port Jackson 1788 — William Bradley watercolour.

ural productions.' Of the north side of the Bay, visited the day before, he said:

> there are great numbers of very large and lofty trees reaching almost to the waters edge and every vacant spot between the trees appears to be covered with verdure. But upon a closer inspection, the grass is found long and coarse, the trees very large and in general hollow, and the wood itself fit for no purpose of building or anything but the fire. The soil to a great depth is nothing but a black sand.

And of the south side 'there are many cabbage trees, but scarce any fruit whatever'. Having wandered some distance into the woods he became lost and 'at one time I was surrounded by fern (exactly the same as in England) on every side above my head' (Bowes Smyth 1787–89, pp. 57–60).

Bradley's chart (Chart 9, op. cit.) of Botany Bay shows 'swampy and barren' land west of Pt Solander (i.e. south of Weeney Bay), 'sandy and swampy' west of Cooks River, and 'sandy and barren country' north of Bare Island. Hunter (op. cit., p. 52), returning overland from a visit to the French ships in Botany Bay in March said of the country between Sydney and Botany Bay:

> [we] travelled through the woods and swamps, of which there were many on our route (in a direct line eight or nine miles) . . . the country about two miles to the southward of Port Jackson abounds with high trees and little or no underwood; but between that and Botany Bay, it is all thick, low woods or scrubberies, barren heaths and swamps; the land near the sea, although covered in many places with wood, is rocky from the water-side to the very summit of the hills . . .

Sydney Cove and Port Jackson

On arrival at Port Jackson attention focussed on setting up camp, but within a few days further detailed exploration of the harbour was undertaken by Hunter and Bradley in particular, and the land near to Sydney

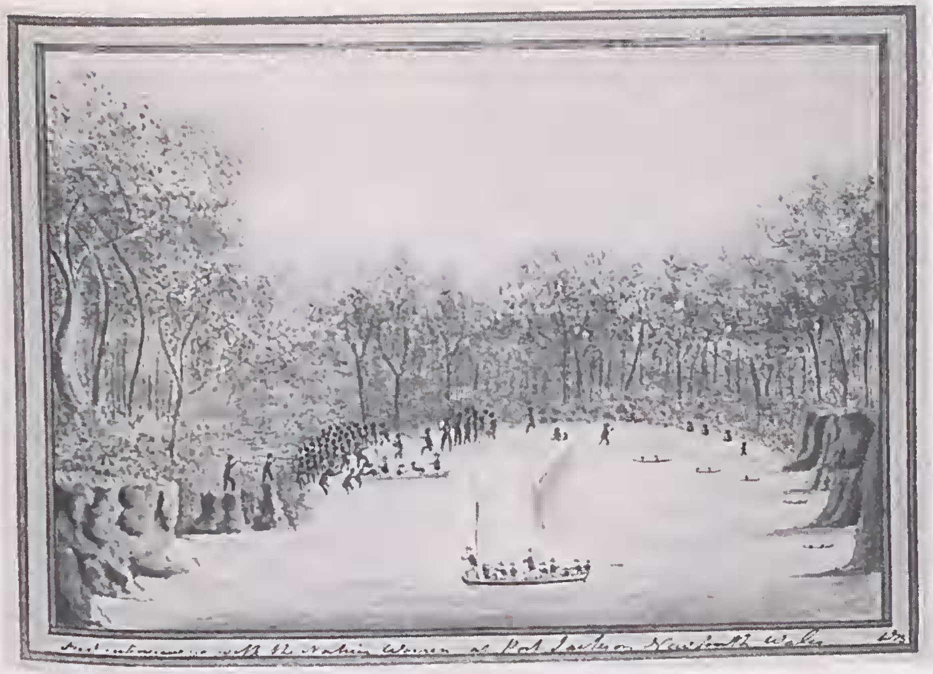
First interview with the Native Women at Port Jackson New South Wales

Fig. 3. First interview with the native women at Port Jackson, New South Wales — William Bradley watercolour.

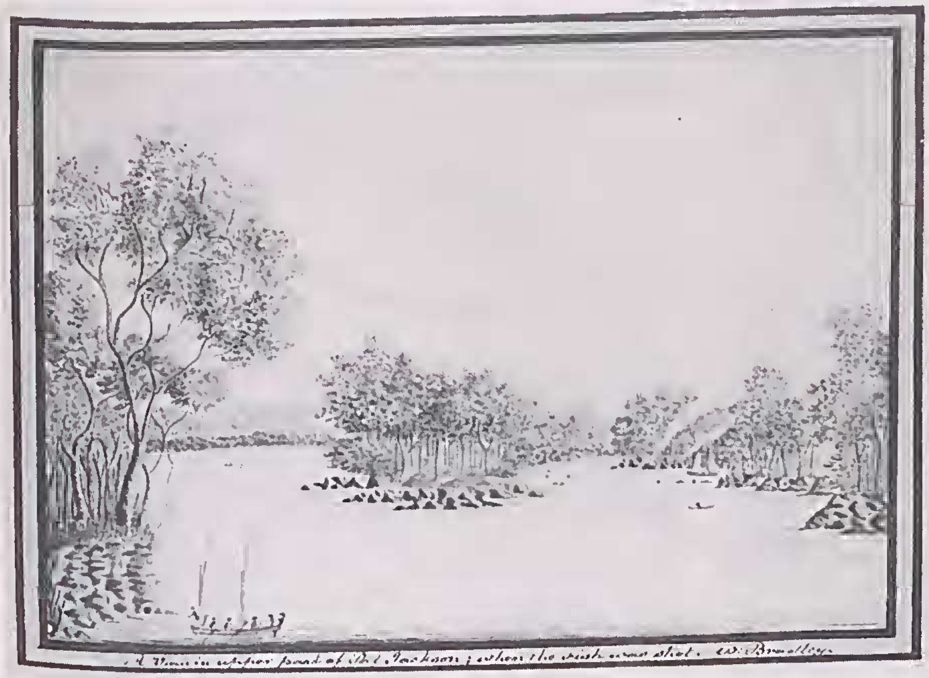
A View in upper part of Port Jackson; when the fish was shot. W. Bradley

Fig. 4. A view of the upper part of Port Jackson, when the fish was shot — William Bradley watercolour.

Cove was explored. Phillip (op. cit., p. 127) reported that Port Jackson contained

> a considerable number of coves, formed by narrow necks of land, mostly rocks covered with timber, and the face of the country, when viewed from the harbour, is the same, with few exceptions. The neck of land between the harbour and the coast is mostly sand.

Bradley's sketch of the entrance to Port Jackson (Fig. 1) shows low vegetation on the North and South Head areas with taller woodland further inland to the south. Of North Head Bradley (op. cit., p. 109) noted: 'the land about the N Head is sandy ground between the tops of the rocks, covered with a variety of brushwood and shrubs some of which have very pretty blossoms'.

Worgan (op. cit., p. 7) mentioned the forested nature of Sydney Harbour shores:

> the land forms a number of pleasant coves in most of which 6 or 7 ships may lie secured to the trees on shore. It contains likewise a number of small islands which are covered with trees and a variety of herbage all of which appears to be evergreen.

Bradley's watercolour, *First interview with the native women at Port Jackson*, shows tall trees, relatively dense almost to the beach edge, and a very dense bushy understorey (Fig. 3). This meeting was in Manly Cove.

Bradley also discussed and portrayed the harbour above Farm Cove. He (Bradley op. cit., p. 75) said: 'Those coves above where the ships lay were surrounded by mangroves and had mudflats at the bottom, those below had sandy beaches most of them.' And 'about four mile higher than where the ships lay, the country was open and improved the farther we went up and in most places not any underwood, grass very long' (Bradley op. cit., p. 75). His view, the *Upper part of Port Jackson: when the fish was shot*, shows relatively dense stands of trees above a rocky foreshore, but with grassy understorey, and in the distance a low dense, darker green shrubby fringe — possibly

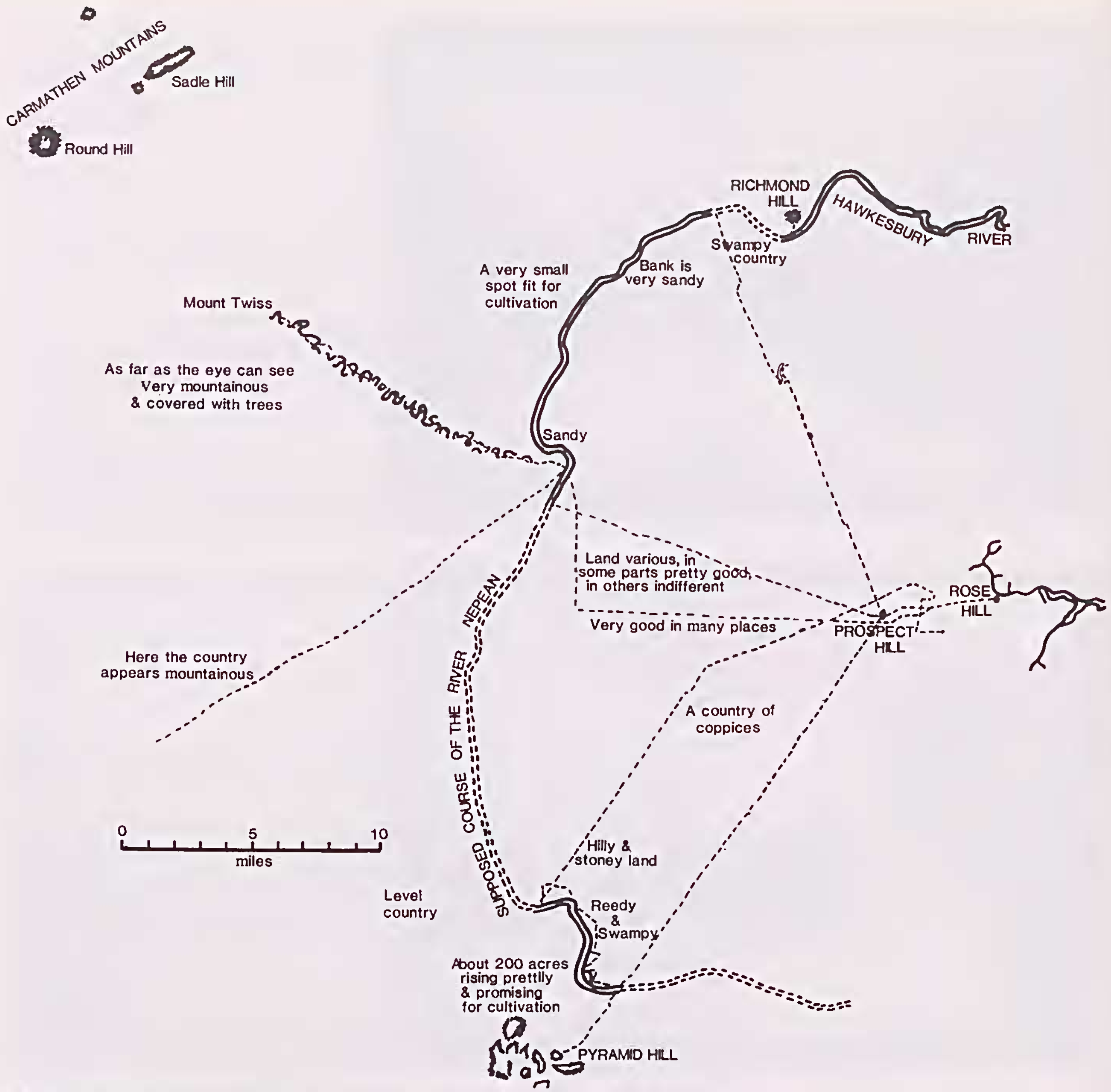
CARMATHEN MOUNTAINS
Sadle Hill
Round Hill
RICHMOND HILL
HAWKESBURY RIVER
Swampy country
Bank is very sandy
A very small spot fit for cultivation
Mount Twiss
As far as the eye can see Very mountainous & covered with trees
Sandy
Land various, in some parts pretty good, in others indifferent
Very good in many places
ROSE HILL
PROSPECT HILL
Here the country appears mountainous
NEPEAN
SUPPOSED COURSE OF THE RIVER
A country of coppices
0
5
10
miles
Hilly & stoney land
Level country
Reedy & Swampy
About 200 acres rising prettlly & promising for cultivation
PYRAMID HILL

Fig. 5. Exploration routes and comments on the country — Rose Hill to the Carmathen Mountains.

mangroves (Fig. 4). The site of this painting has been suggested to be Supply Head, now Manns Point at Greenwich (Kennedy & Kennedy 1982). Bradley's chart (Chart 11) of the *Channel to Rose Hill* shows Homebush Bay with the creek on the southeast side noted as 'full of mangroves, not room for boat oars', and the upper reaches of the Duck River as 'full of stumps and fallen trees.'

Exploration

A number of exploratory expeditions were undertaken within the first few months and within 18 months the country for a radius of about 100 kms had been traversed, the Hawkesbury River and the Nepean River had been found and also a few areas of land suitable for cultivation. The range of country the explorers travelled through on their expedition west from the head of Port Jackson included 'a thicket of brushwood, which we found so impervious as to oblige us to return nearly to the place from whence we had set out in the morning' to river banks where 'the grass was tolerably rich and succulent, and in height nearly up to the middle, interspersed with a plant much resembling the indigo' to other areas where the river banks 'were now pleasant, the trees immensely large, and at a considerable distance from each other; and the land around us flat and rather low, but well covered with the kind of grass just mentioned' (White op. cit., pp. 127–128). In this area they found a 'quarry of slates' — presumably Wianamatta shales.

The exploration of the northern shores of the harbour, north and west from Manly Cove to somewhere north of Pennant Hills was through rather more difficult country. There were 'thickets and swamps', 'immense woods' and high, rocky country, 'the soil arid, parched and inhospitable'. Near Pennant Hills they came to rather better country — White said 'the land here, although covered with an endless wood, was

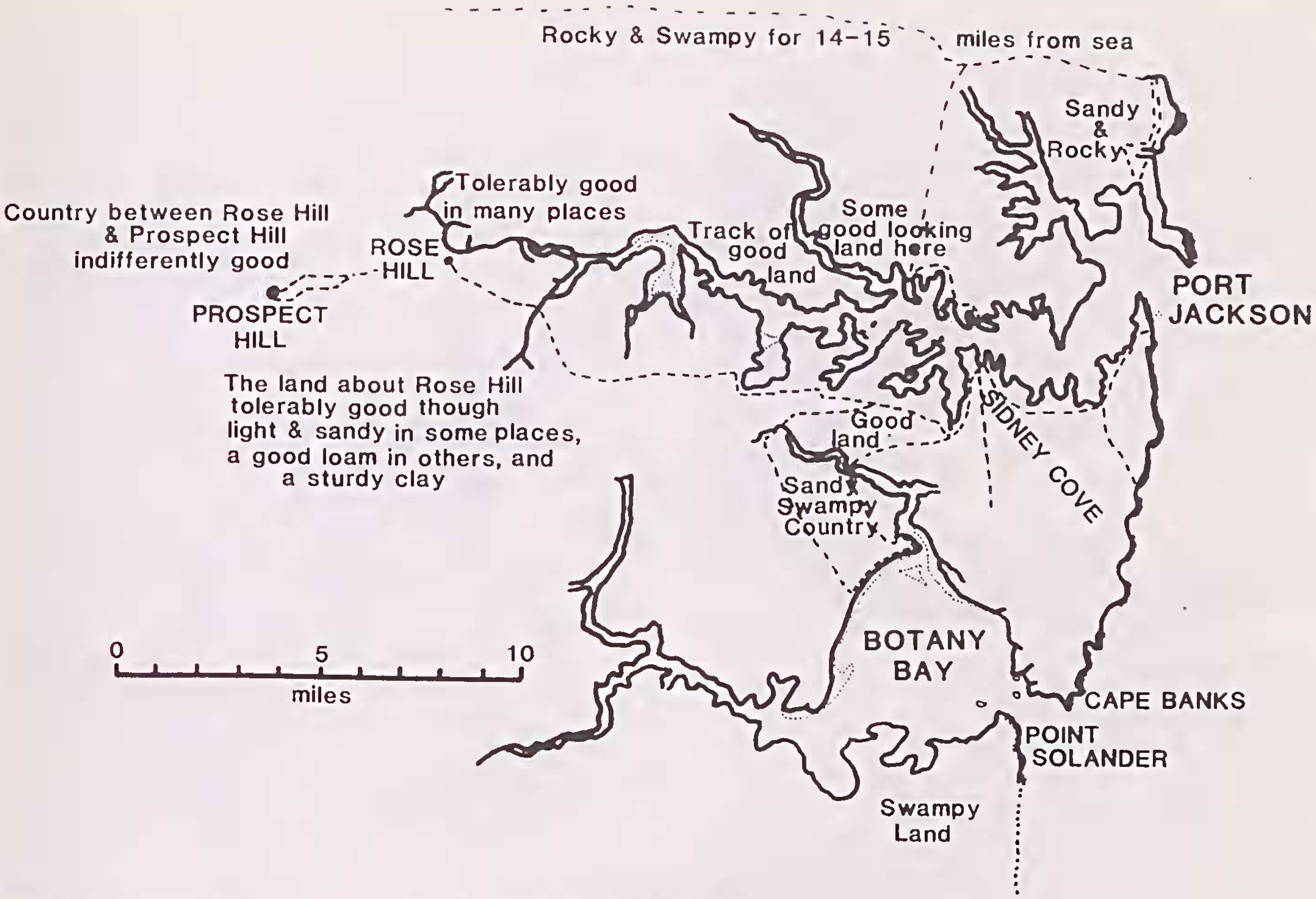
Rocky & Swampy for 14–15 miles from sea
Sandy & Rocky
Tolerably good in many places
Country between Rose Hill & Prospect Hill indifferently good
ROSE HILL
PROSPECT HILL
Track of good land
Some good looking land here
PORT JACKSON
The land about Rose Hill tolerably good though light & sandy in some places, a good loam in others, and a sturdy clay
Good land
SIDNEY COVE
Sandy Swampy Country
0
5
10
miles
BOTANY BAY
CAPE BANKS
POINT SOLANDER
Swampy Land

Fig. 6. Exploration routes and comments on the country — Port Jackson to Botany Bay.

better than the parts which we had already explored. Finding it, however, very unlikely that we should be able to penetrate through this immense forest, and circumstanced as we were, it was thought more prudent to return.' (White op. cit., pp. 121–125). Phillip (op. cit., p. 133) said of the same trip:

> The country we passed thro' when we left the low grounds was the most rocky and barren I ever saw; the ascending and descending of the mountains being practicable only in particular places, but covered with flowering shrubs . . .

On most if not all of these expeditions plants and animals were collected for preservation and forwarding to natural history experts in England. White (op. cit., p. 158) mentioned that, returning from Broken Bay along the sea coast, they 'picked up, in the distance of about half a mile, twenty-five flowers of plants and shrubs of different genera and species'. Figures 5–7, based on Dawes map of 1791, indicate the extent of the exploration and the types of comments on the landscape made within the first 18 months or so of settlement.

While the observations are basically geographical and ecological, together with the maps and charts available they do provide a basis for reconstruction of the broad vegetation types. Such attempts have been made by Campbell (1924, assisted by J. H. Maiden) for the Sydney Cove settlement area, and by Kartzoff (1969) and Burrell (1972) for the Sydney region more generally. Maps have recently been produced by Dodson (1987) and modified somewhat by Aplin (1988). In all cases they suggest the presence of open forest and woodlands with mixed eucalypt species present on Sydney sandstone areas, including *Eucalyptus pilularis* (blackbutt), *E. piperita* (Sydney peppermint) and *Angophora costata* (smooth-barked apple) on the sheltered slopes and in gullies, and *E. haemastoma* (scribbly gum), *E. gummifera* (*red bloodwood*) and *E. oblonga* (narrow-leaved stringybark) on the drier, more exposed ridges and plateaux. Open and closed heathlands were present on the coastal headlands and clifftops and blackbutt-blue gum forests (*E. pilularis — E. saligna*) on the clay-rich soils of the Wianamatta Shales in moderate to high rainfall areas. Grey box and forest red gum woodlands (*E. moluccana* and *E. tereticornis*) were found west of Parramatta (D. Benson, pers. comm.). Small patches of rainforest occurred in the sheltered coastal gullies and mangroves, saltmarshes and she-oak (*Allocasuarina*) woodlands or brackish- and fresh-water swamps occupied the littoral alluvial flats.

A striking feature of many of the descriptions is the open nature of the country, with widely spaced very large trees and little or no understorey, only a grassy ground cover of kangaroo grass, *Themeda australis*, or in some areas blady grass, *Imperata cylindrica*, or ferns (almost certainly bracken, *Pteridium esculentum*, as mentioned by Bowes Smyth). The numerous comments on fires, initially thought to be caused by lightning but soon attributed to the Aborigines, must be considered in relation to this. The lack of understorey and the type of ground cover in many of the forested areas was probably due to the frequency and type of

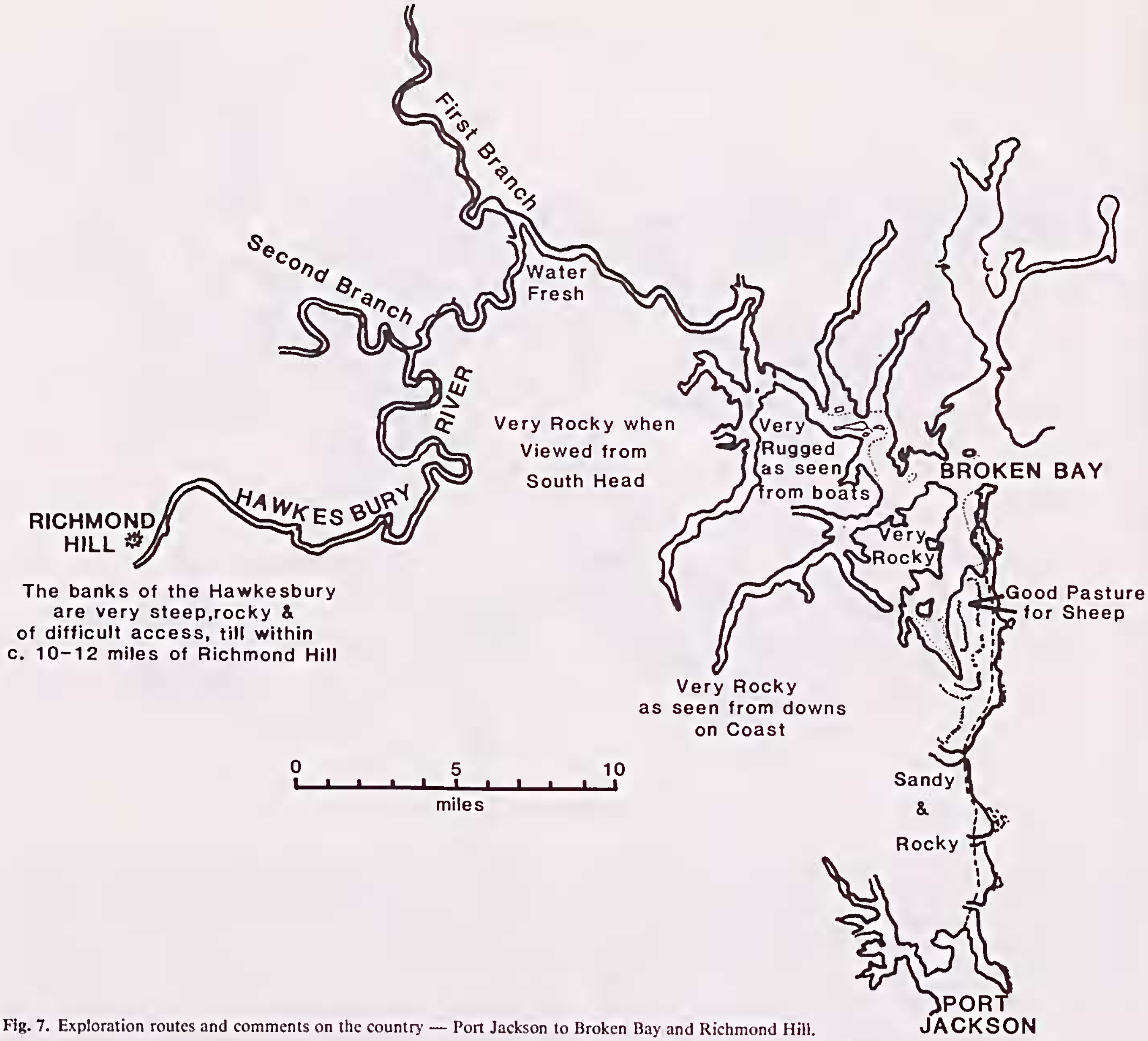
First Branch
Second Branch
Water Fresh
HAWKES BURY RIVER
RICHMOND HILL
Very Rocky when Viewed from South Head
Very Rugged as seen from boats
BROKEN BAY
Very Rocky
Good Pasture for Sheep
The banks of the Hawkesbury are very steep, rocky & of difficult access, till within c. 10–12 miles of Richmond Hill
Very Rocky as seen from downs on Coast
0 5 10
miles
Sandy & Rocky
PORT JACKSON

Fig. 7. Exploration routes and comments on the country — Port Jackson to Broken Bay and Richmond Hill.

burning done by the Aborigines. Hunter (op. cit., p. 43) said: 'They also, when in considerable numbers, set the country on fire for several miles extent'. Phillip (op. cit., p.135) commented that:

> In all the country thro' which I have passed I have seldom gone a quarter of a mile without seeing trees which appear to have been destroyed by fire . . . the natives always make their fire, if not before their own huts, at the root of a gum-tree, which burns very freely, and they never put a fire out when they leave the place.

White (op. cit., p. 130) and companions, while on the Prospect Hill expedition,

> saw a hollow tree on fire . . . On coming near, and minutely examining it, we found that it had been set on fire by the natives; for there was some dry grass lighted and put into the hole . . .

Not only were the forested areas burned, but also the heathlands. Hunter mentions visiting a fire lit by Aborigines near North Head in July. He (Hunter op. cit., p. 55) wrote:

> there were not less than three or four acres of ground all in a blaze . . . We had observed that they generally took the advantage of windy weather for making such fires, which would of course occasion their spreading over a greater extent of ground.

The reasons conjectured for the use of fire by Aborigines included: driving out animals from the bush so they could be easily killed, and clearing the 'brush or underwood' to make travelling easier or, in winter, the digging up of orchid roots (observed by Hunter).

The grassy cover appears to relate mainly to the clay soils of the Wianamatta Shales, a shrubby understorey being more commonly developed on the Hawkesbury Sandstone areas (D. Benson, pers.comm.). With the arrival of the European almost certainly fire frequency changed, and consequent upon that, the composition and density of the understorey and undergrowth of many of the forested areas and also the floristics of other plant communities.

Plant use

Concurrent with the exploration, land was being cleared, local timber was being cut for buildings, and local foods and medicines were being sought to supplement the rations and to help treat the scurvy and dysentery that was present in the early days of the settlement.

The lack of an official botanist, horticulturalist or scientifically trained naturalist assigned to the First Fleet is rather surprising given the tradition of having naturalists along on voyages of exploration and also given that it was primarily Banks who had suggested the suitability of Botany Bay for settlement. The First Fleet was sent out to establish a settlement and was under the control of the government and the military, and although it was recognized that further exploration would be necessary it may have been considered that Cook's voyages had laid an adequate botanical foundation for the start of a settlement. Gilbert (1981) in noting the lack of an official naturalist with the First Fleet considers it may have been because Banks wanted to give the colony time to establish itself successfully. But he suggests also, that it may have been due to an oversight, or lack of success on Bank's part.

Whatever the reason for such an omission, the lack of a botanist was very strongly felt in the early days of the settlement, and commented upon by most of the officers. Phillip (op. cit., p. 128), writing to Lord Sydney on 15 May 1788, said:

> I must beg leave to observe, with regret, that being myself without the smallest knowledge of botany, I am without one botanist, or even an intelligent gardener, in the colony . . .. which has such a variety of plants that I cannot, with all my ignorance, help being convinced that it merits the attention of a naturalist and the botanist.

Tench (1789, 1793, p. 66) said:

> Nor can I help being . . . concerned, that an experienced botanist was not sent out, for the purpose of collecting and describing the rare and beautiful plants with which the country abounds . . .Indeed, we flattered ourselves, when at the Cape of Good Hope, that Mason, the King's botanical gardener, who was employed there in collecting for the royal nursery at Kew, would have joined us, but it seems his orders and engagements prevented him from quitting that beaten track, to enter on this scene of novelty and variety . . . To the naturalists this country holds out many invitations.

Banks did have the Governor and many of the Officers collecting for him, however, as evidenced by their letters and journals (e.g. Phillip op. cit., p. 128; White op. cit., appendix 1) as well as the first Colonial Chaplain, Reverend Richard Johnson. Later, in 1791, he employed David Burton, the superintendent of convicts to collect and send both living and dried botanical specimens to him (Gilbert 1981). Banks is credited with 76 introduced Australian species in *Hortus Kewensis* for the years 1781–1800 and these came mainly from New South Wales (Carter 1988).

Hunter (op. cit., p. 49) said:

> The vast variety of beautiful plants and flowers, which are to be found in this country, may hereafter afford much entertainment to the curious in the science of botany; but I am wholly unqualified to describe the different sorts with which we find the woods to abound; we sometimes met with a little wild spinach, parsley and sorrel, but in too small quantities to expect it to be of any advantage to the seamen.

Food and medicinal plants

Only very few native plants were gathered by the First Fleeters and not surprisingly they were ones that appeared similar to those used back in England, or were known to have been used by Cook on his voyages.

The parsley and sorrel mentioned by Hunter were probably *Apium prostratum* and *Oxalis corniculata* or wood sorrel. There are two forms of *Apium*, one found on the swamp margins, the other on open sand dunes. It was used by Cook as an anti-scorbutic; also eaten by Labillardiére — and named and described by him from Tasmania. The wood sorrel is mentioned also by White (op. cit., p. 137) who gathered it en route from Botany Bay to Sydney. The spinach was almost certainly *Tetragonia tetragonioides* — New Zealand spinach (native also of Japan, S. America and Australia) common in coastal districts growing on the sand. The young shoots taste like English spinach. It was used by Captain Cook who is said 'to have had it served out to the sailors every day, at breakfast and dinner' (Woolls 1867, p. 26).

Other possible food plants were tried on the exploratory expeditions: White (op. cit., p. 157) mentions gathering some beans, possibly *Canavalia* as they grew on the beach foredune. He said:

> They were well tasted, and very similar to the English long-pod bean . . . we had them boiled, and we all eat very heartily of them. Half an hour after, the governor and I were seized with a violent vomiting . . .

Fruits used occasionally included raspberries (*Rubus* spp.) collected en route to Broken Bay (White, op. cit., p. 158), lilly pilly (*Acmena smithii*) or 'the small purple apple mentioned by Cook' (Tench op. cit., p. 65), wild figs (particularly *Ficus rubiginosa*) which the Aborigines demonstrated were edible (White op. cit., p. 153), and were also used by Cook (Maiden, 1909) but considered 'naseous' by later settlers (Mann 1811, p. 50) as was the native cherry, *Exocarpos cupressiformis*. The common appleberry or dumpling, *Billardiera scandens* was used also (described by J. E. Smith (1793–1795) on the basis of specimens sent to him by White).

White (op. cit., p. 155) in discussing scurvy said:

> that disorder still prevails . . ., nor can we at present find any remedy against it, notwithstanding that the country produces several sorts of plants and shrubs which, in this place, are considered as tolerable vegetables, and used in common. The most plentiful is a plant growing on the seashore, greatly resembling sage. Among it are often to be found samphire, and a kind of wild spinage, besides a small shrub which we distinguish by the name of the vegetable tree, and the leaves of which prove rather a pleasant substitute for vegetables.

The sage was probably grey saltbush, *Atriplex cinerea*, a seashore shrub with edible leaves similar in appearance to the English sage, *Salvia officinalis*, although unrelated to it. Mann (1811, p. 51) wrote 'Botany Bay greens are procured in abundance; they much resemble sage in appearance and are esteemed a very good dish by the Europeans, but despised by the natives.'

The samphire was probably *Sarcocornia quinqueflora*, a small salt marsh herb similar to the English samphire which was used as a pickle. The young shoots when cooked taste like a salty spinach (Cribb & Cribb 1974, p. 128). Also probably used was the seablite, *Suaeda australis* (syn *S. maritima* var. *australis*), a sandflat and salt marsh plant often found associated with samphire; the leafy stem tips can be eaten raw or cooked or pickled, and taste like salty beans (Cribb & Cribb 1974, p. 130). The 'vegetable tree' of White is impossible to identify but may have been a species of *Hibiscus* as many of them have edible leaves and are widely used in the Pacific, Melanesia through to Asia.

Other plants observed to be used as food by the Aborigines but not added to the European settlers diet included fern and orchid roots (noted by Bradley and Hunter to be roasted or broiled before being eaten), and some 'wild yams about the size of a walnut' observed on the banks of the Macdonald and Hawkesbury rivers (Hunter, op. cit., pp. 102, 104). Bracken (*Pteridium esculentum*) and swamp waterfern (*Blechnum indicum*) were probably used and species of *Caladenia*, *Diuris* and *Gastrodia* among the orchids. The wild yams may have been *Microseris lanceolata* (Murnong), *Leichhardtia leptophylla* (syn. *Marsdenia leptophylla*, bush bananas) or possibly *Cyperus* or *Typha* species.

Others, such as the cycad, burrawang (*Macrozamia communis*) required considerable preparation to make them edible and Bradley (op. cit., p. 135) reported that 'one of the convicts was poisoned by eating them, . . . in what manner the natives prepare them I do not know but I tasted some at Broken Bay and thought them good.'

Two plants mentioned in most of the journals as being effective against scurvy were the sweet tea, *Smilax glyciphylla* (also known as native sarsaparilla), and the native currant, *Leptomeria acida*. Sweet tea was described by White (op. cit., p. 155) as

> a creeping kind of vine, running to a great extent along the ground; the stalk is not so thick as the smallest honeysuckle; nor is the leaf so large as the common bay leaf, though something similar to it; and the taste is sweet, exactly like the liquorice root of the shops. Of this the convicts and soldiers make an infusion which is tolerably pleasant, and serves as no bad succedaneum for tea . . . In using it for medicinal purposes, I have found it to be a good pectoral, and . . . not at all unpleasant.

This species, a member of the Smilacaceae, is widespread in damp situations and wet sclerophyll vegetation. Maiden (in Campbell 1924) considers it would have been available in Sydney Cove. Analysis of the fruit indicated a vitamin C content of 21 milligrams per 100 grams i.e. more or less equivalent to tomatoes (Davey et al. 1947).

The native currant was also described by White (op. cit., p. 155):

> We have also a kind of shrub . . . resembling the common broom, which produces a small berry like a white currant, but in taste more similar to a very sour green gooseberry. This has proved a good antiscorbutic; but I am sorry to add that the quantity to be met with is far from sufficient to remove the scurvy.

Tench (op. cit., p. 65) mentioned this also: 'a fruit which has the appearance of a grape though in taste more like a green gooseberry, being excessively sour.' This is a large shrub, widespread in dry sclerophyll forest and in sheltered situations. A member of the Santalaceae, the fruit has 26 milligrams of vitamin C per 100 grams (Davey et al. 1947). Mann, writing in 1811 of Port Jackson said that 'Native green currants grow wildly, and make an uncommonly fine jelly' (Mann 1811, p. 50).

Species used as medicines included *Xanthorrhoea* sp. (grass tree), *Eucalyptus piperita* (Sydney peppermint or peppermint tree) and possibly *E. resinifera* (red mahogany). Arthur Bowes Smyth (op. cit., p. 70) wrote of the *Xanthorrhoea*:

> collected a large quantity of yellow Balsam from a tree, or rather a shrub which grows in great numbers on the sandy hills near Botany Bay . . . there is no doubt of this Balsam possessing medicinal virtues as it has been repeatedly made use of . . . in pulmonary disorders and with success. It dissolves perfectly in spirits and is of a most fragrant and aromatic taste and smell — I have etched the likeness of the tree which produces this gum, with my pen which I have subjoined and is no very bad resemblance of it.

The oil of the peppermint tree, was found to be effective in treating 'all cholicky complaints'. It was so-named 'on account of the very great resemblance between the essential oil drawn from its leaves and that obtained from the peppermint (*Mentha piperita*) which grows in England'. A quart of this oil was sent by White to Thomas Wilson for analysis (White op. cit., p. 173–4).

White considered the 'astringent red gum', (collected possibly from a number of species of *Eucalyptus*, not just *E. resinifera*) was more powerful medicinally than the yellow *Xanthorrhoea* resin. He (White op. cit., p. 145) said 'I have found [it] very serviceable in an obstinate dysentery that raged at our first landing'.

A multi-purpose plant

One species that was found to be valuable not only as food but also for building purposes was *Livistona australis*, the cabbage palm. White (op. cit., p. 156), camping on the way to Broken Bay from Manly Cove (in June 1788) near a cabbage tree swamp, recorded that 'the whole party got as much cabbage to eat with their salt provisions [and with a 'fine duck' that they shot], as they chose.' Thus the 'heart cabbage' was eaten raw or cooked, the outer part of the stem, moderately hard, was used for slabs for buildings, the inner pith was used as food for the pigs, and the leaves and later the fibre of the leaves were used in the manufacture of hats.

Timber

Clearance of the land began almost immediately after arrival at Sydney Cove. Worgan (op. cit., p. 33) noted on 27 January 1788:

> Early this morning a number of the Artificers and Convicts were sent on shore with the necessary implements for clearing the ground felling trees, in order that the tents might be pitched for the Battalion. . .

The Sydney sandstone open forest and woodland eucalypts and angophoras were the first trees to be cut down by the convicts when they established a saw-pit at Botany Bay. One can imagine their reaction to the exceedingly hard, gum-filled timber that they attempted to cut into planks but that split and warped when used green. Almost all of the officers comment on it. White (op. cit., p. 119) said:

> the timber of this country is very unfit for the purpose of building. Nor do I know any one purpose for which it will answer except for fire-wood; and for that it is excellent: but in other respects it is the worst wood that any country or climate ever produced, altho' some of the trees, when standing, appear fit for any use whatever, masts for shipping not excepted.

Hunter (op. cit., p. 49) recorded:

> we were here in the middle of a wood, in which were trees from the size of a man's arm to 28 feet in circumference; but were either so very crooked, so rent, or so very rotten in the heart, that we could scarcely get one sound or serviceable in a dozen; and what in our situation was a very great misfortune, we had not as yet found one piece of timber that would float on water . . .

Collins (1798, 1802) said in early March, 1788:

> the long-boats of the ships in the cove were employed in bringing up cabbage-tree from the lower part of the harbour, where it grew in great abundance and was found, when cut into proper lengths, very fit for the purpose of erecting temporary huts, the posts and plates of which being made from the pine of this country [*Casuarina* spp.], and the sides and ends filled with lengths of the cabbage tree, plastered over with clay, formed a very good hovel.

Phillip (op. cit., p. 128) noted that 'The timber which in its growth resembles the fir-tree warps less, but we are already obliged to fetch it from some distance, and it will not float.' He was referring to *Casuarina* spp. that were found to be suitable for roofing shingles as well as for frames and floors.

A short time later they found timber trees of higher quality on the Wianamatta shales and in the forests along the Hawkesbury River. In early 1791 Bradley wrote of the value of some 12 species used for house and boat building, for furniture and for tools and wheels etc. These possibly included *Eucalyptus paniculata*, *E. piperita*, *E. robusta*, *E. pilularis* and *E. saligna* amongst the eucalypts, and *Syncarpia glomulifera* (turpentine), *Ceratopetalum apetalum* (coachwood), *Casuarina* spp. and *Banksia* spp. amongst others. His list does not include *Toona australis*, the Australian red cedar, which was to be exported in large quantities within a few years.

Conclusions

The material selected for discussion above is only a very small part of that present in the journals of the First Fleet Officers but it does indicate the type of information available and the richness of the source. These journals, with their vivid descriptions, natural history drawings,landscape paintings and etchings, and accurate charts are the only source of information we have on the vegetation and landscape of the Sydney region at the time of European settlement. Even by 1789 there is a reduction in the written observations and fewer paintings and maps are extant. Exploration turned to areas further afield, the local environment was more familiar and food shortages were becoming critical and claiming more attention from those in charge. By the time George Caley and Allan Cunningham arrived (in 1800 and 1816 respectively) to take a more professionally scientific interest in the country, much of the immediate Sydney vegetation had been cleared and the effects of Aboriginal burning and other subsistence practices had diminished as a result of lower population numbers and movement away from the region. As Gilbert (1981, p. 223) says

> The first instruments used in the botanical investigation of New South Wales were the axe, the saw and the hoe, and there has been a strong propensity for destroying trees ever since.

Given this, the written observations of the First Fleet Officers should not be underestimated as a source of ecological and botanical information.

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